

WHAT IS CLAIMED IS:

1. A dye composition for dyeing keratin fibers comprising, in an appropriate dyeing medium, at least one aldehyde precursor, at least one enzyme able to generate an aldehyde from the at least one aldehyde precursor, and at least one heteroaromatic hydrazone.

2. The dye composition according to claim 1, wherein the at least one enzyme is derived from an extract chosen from plant, animal, microorganism, virus, differentiated cell and dedifferentiated cell extracts, and wherein said at least one enzyme may or may not be obtained *in vivo* or *in vitro*, may or may not be genetically modified, and may or may not be obtained by chemical or biotechnological synthesis.

3. The dye composition according to Claim 2, wherein the at least one enzyme is derived from a species chosen from *Plectranthus*, *Pinus*, *Gastropoda*, *Manduca*, *Pichia*, *Candida*, *Pleurotus*, and *Pseudomonas*.

4. The dye composition according to Claim 3, wherein the at least one enzyme is derived from a species chosen from: *Plectranthus colleoides*, *Pinus strobus*, *Gastropoda mollusc*, *Manduca sexta*, *Pichia pastoris*, *Candida boidinii*, *Pleurotus pulmonarius* and *Pseudomonas pseudoalcaligenes*.

5. The dye composition according to Claim 1, wherein the at least one enzyme is present in the dye composition in a concentration ranging from 0.005 % to 40 % by weight, relative to the total weight of said dye composition.

6. The dye composition according to Claim 1, wherein the at least one aldehyde precursor is an alcohol chosen from amino acids, 2-oxo acids, and primary alcohols.

7. The dye composition according to Claim 6, wherein the alcohols from amino acids are chosen from N-6 methyl lysine, dimethylglycine, methyl glutamate, threonine and sarcosine.

8. The dye composition according to Claim 6, wherein the 2-oxo acids are chosen from: 2-oxoacidpyruvate, benzoylformate, and phenyl pyruvate.

9. The dye composition according to Claim 6, wherein the primary alcohols are chosen from methanol, ethanol, and benzyl alcohol.

10. The dye composition according to Claim 6, wherein the concentration of the at least one aldehyde precursor ranges from 0.01% to 40% by weight, relative to the total weight of the composition.

11. The dye composition according to Claim 1, wherein the at least one heteroaromatic hydrazone is chosen from hydrazones having the formula:



wherein Ar is chosen from heterocycles with 5 or 6 links comprising at least one nitrogen atom; and condensed polycyclic heteroaromatic groups with 9 or 10 links comprising at least one nitrogen atom,

wherein Ar can optionally be substituted on the nitrogen atoms by a substituent chosen from C₁ to C₄ alkyls, C₁ to C₄ alcohols, and C₁ to C₄ ethers.

12. The dye composition according to claim 11, wherein the concentration of the at least one heteroaromatic hydrazone ranges from 0.0005% to 20% by weight, relative to the total weight of the composition.

13. The dye composition according to any of Claim 1, further comprising at least one oxidation base chosen from paraphenyldiamines, bis-phenylalkylenediamines, para-aminophenols, ortho-aminophenols, heterocyclic bases, and the addition salts thereof.

14. The dye composition according to Claim 13, wherein the concentration of the at least one oxidation base in the dye composition ranges from 0.0005% to 10% by weight, relative to the total weight of the dye composition.

15. The dye composition according to Claim 1, further comprising at least one oxidation coupler chosen from metaphenylenediamines, metaaminophenols, metadiphenols, naphthalene couplers, heterocyclic couplers, and the addition salts thereof.

16. The dye composition according to Claim 15, wherein the concentration of the at least one coupler in the dye composition ranges from 0.0001% to 10% by weight relative to the total weight of the composition.

17. The dye composition according to Claim 1, further comprising at least one direct dye.

18. The dye composition according to Claim 1, further comprising at least one oxidizing agent.

19. A method for dyeing keratin fibers, comprising:
applying to said keratin fibers a dye composition comprising, in an appropriate dyeing medium, at least one aldehyde precursor, at least one enzyme able to generate an aldehyde from the at least one aldehyde precursor, and at least one heteroaromatic hydrazone, and

leaving said dyeing composition on said keratin fibers for a time sufficient to develop a desired color on the keratin fibers.

20. The method according to Claim 19, wherein the keratin fibers are human keratin fibers.

21. The method according to Claim 20, wherein the human keratin fibers are hair.

22. The method according to Claim 19, wherein said time sufficient ranges from approximately 3 to 60 minutes.

23. The method according to Claim 22, wherein said time sufficient ranges from approximately 5 to 40 minutes.

24. The method according to Claim 19, further comprising, after the color is developed, rinsing said keratin fibers, shampooing said keratin fibers, rinsing again, and drying said keratin fibers.

25. The method according to Claim 19, wherein the dye composition applied to said keratin fibers further comprises at least one oxidation base chosen from paraphenyldiamines, bis-phenylalkylenediamines, para-aminophenols, ortho-aminophenols, heterocyclic bases, and the addition salts thereof.

26. The method according to Claim 19, wherein the dye composition applied to said keratin fibers further comprises at least one oxidation coupler chosen from metaphenylenediamines, metaaminophenols, metadiphenols, naphthalene couplers, heterocyclic couplers, and the addition salts thereof.

27. The method according to Claim 19, wherein the dye composition applied to said keratin fibers further comprises at least one direct dye.

28. The method according to Claim 19, wherein said color is developed using an oxidizing agent.

29. The method according to Claim 28, wherein said oxidizing agent is added to the dye composition at the time of use or is comprised in an oxidizing composition which may be applied to the keratin fibers simultaneously with or sequentially after the dye composition.

30. The method according to Claim 19, wherein the dye composition applied to said keratin fibers is a ready-to-use composition stored in anaerobic form free of gaseous oxygen.

31. The method according to claim 19, wherein said at least one aldehyde precursor, said at least one enzyme able to generate an aldehyde from the at least one aldehyde precursor, and said at least one heteroaromatic hydrazone, are mixed together, in the appropriate dyeing medium, on the keratin fibers.

32. A method for dyeing keratin fibers, comprising
mixing a first composition with a second composition to form a ready-to-use dye composition, wherein

 said first composition comprises, in an appropriate dyeing medium, at least one aldehyde precursor, and

 said second composition comprises, in an appropriate dyeing medium, at least one enzyme able to generate an aldehyde from the at least one aldehyde precursor, and further wherein at least one of said first composition and said second composition additionally comprises at least one heteroaromatic hydrazone,

 and applying said ready-to-use dye composition to the keratin fibers.

33. The method according to Claim 32, wherein the color is developed using an oxidizing agent.

34. The method according to Claim 32, wherein said first composition and said second composition are mixed together on the keratin fibers.

35. The method according to Claim 33, wherein said oxidizing agent is added to the ready-to-use dye composition at the time of use or is comprised in an oxidizing

composition which may be applied to the keratin fibers simultaneously with or sequentially after the ready-to-use dyeing composition.

36. A multi-compartment device for dyeing keratin fibers comprising a first compartment comprising a first composition, and a second compartment comprising a second composition, wherein

- said first composition comprises, in an appropriate dyeing medium, at least one aldehyde precursor;
- said second composition comprises, in an appropriate dyeing medium, at least one enzyme able to generate an aldehyde from the at least one aldehyde precursor; and

wherein at least one of said first composition and said second composition further comprises at least one heteroaromatic hydrazone.